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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 13823.20-2008

**Methods for the calibration of vibration and shock pick-ups --
Accelerometer resonance testing -- General methods**

振动与冲击传感器校准方法 加速度计谐振测试 通用方法

(English Translation)

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Foreword

GB/T 13823 "calibration of vibration and shock sensor" includes the following sections.

- Part 4. Magnetic sensitivity testing;
- Part 5. Testing of mounting torque sensitivity;
- Part 6. base strain sensitivity testing;
- Part 8. transverse vibration sensitivity testing;
- Part 9. transverse shock sensitivity test;
- Part 12. mounted on a steel block speedometer undamped resonance frequency of the test;
- Part 14. primary calibration by centrifuge;
- Part 15. Testing of transient temperature sensitivity method;
- Part 16. Comparison of temperature response test method;
- Part 17. Testing of acoustic sensitivity;
- Part 19. Calibration by Earth's gravity;
- Part 20. Accelerometer resonance testing - General method.

This part of GB/T 13823 Part 20.

This part identical with ISO 5347-22:1997 "vibration and shock sensor calibration methods - Part 22. Accelerometer resonance testing General Method "(in English).

This section is equivalent translation ISO 5347-22:1997. For ease of use, this section made the following editorial changes.

- The term "international standards in this section" to "this Part";

--- Delete foreword international standards;

"," --- With a decimal point instead of a comma as the decimal point, "";

--- References added to the basic concepts and terminology standards;

--- A reference to the ISO 5348, with the use of equivalent substitute for our standard.

This part of the National mechanical vibration, shock and condition monitoring Standardization Technical Committee and centralized.

This section drafted by. China Aerospace Science and Technology Corporation and Testing Technology Research Institute of the first metering, China Institute of Metrology.

1 Scope

GB/T 13823 series of standards by the vibration and shock sensor calibration method of composition.

This section provides the equipment and operating procedures required for testing accelerometer resonance. It can be applied to linear accelerometers, such as pressure Piezoresistive, piezoelectric, variable capacitance accelerometers, applicable frequency range of 50Hz ~ 200kHz.

Procedures usually relatively ISO 5347-14, which applies to undamped speedometer. When the piezoelectric accelerometer mounted in the test when the structure, its frequency response (lowest) resonant frequency usually depends on the device. For a given accelerometer, a provision is difficult to apply Test methods for installing the resonant frequency for all installation conditions. This only applies to operating procedures in a series of standard and repeatable conditions Test accelerometer resonant frequency, and in the conditions of actual use of the resonance frequency is likely to be slightly different (because of the quality of the test structure, Effect of stiffness and installation methods, the resonant frequency is usually low). This method is not suitable for installation under field conditions resonant frequency of the commentary Estimate, corresponding test methods given in the 14412-2005 GB/T .

2 Normative references

The following documents contain provisions which, through GB/T 13823 reference in this text, constitute provisions of this part. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 20485.1-2008 vibration and shock sensor calibration methods - Part 1. Basic

Concepts (ISO 16063-1:1998, IDT) GB/T 14412-2005 Mechanical vibration and shock - Mechanical mounting of accelerometers (ISO 5348:1998, IDT) ISO 2041:1990 Mechanical vibration and shock term

3.1 Thermostatic device

Kept at room temperature $23\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$.

3.2 Frequency generator and Indicators

Frequency range of 50Hz ~ 200kHz.

3.3 Power amplifier and a combination of vibration actuator

Frequency range of 50Hz ~ 200kHz.

3.4 Oscilloscope

Frequency range of 50Hz ~ 200kHz.

3.5 Vibration exciter and reference accelerometer

The resonant frequency is greater than 50kHz.

3.6 Analysis Equipment

Frequency range of not less than 10MHz.

3.7 Reference mass

Size of 28mm x 28mm x 28mm, weight of about 180g mass of steel, can be used to test the resonance frequency up to 50kHz.

GB/T 13823.20-2008/ISO 5347-22:1997